

# Your Television Antenna System

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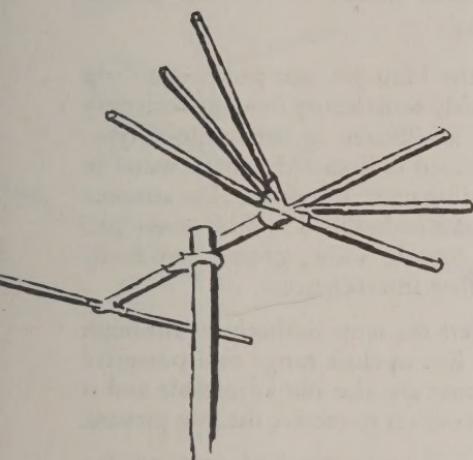
Conflicting claims in advertising for the comparative performance possibilities of various types of television antennas have created some complaints to Better Business Bureaus and some confusion in the minds of consumers about antennas

—what they are, what they will do and what they won't do.

In the interest of clarifying this confusion and assisting the public in the purchasing and maintenance of television antennas, the following facts are set forth.

This booklet has been prepared by the Antenna Section, Parts Division, of the Radio-Electronics-Television Manufacturers Association in cooperation with the Radio-Television Committee of the Association of Better Business Bureaus.

**Radio-Electronics-Television Manufacturers Association**  
777 14th St., N.W., Washington 5, D.C.  
*and the*  
**Association of Better Business Bureaus**  
405 Lexington Ave., New York 17, N.Y.



# What is a Television Antenna?

There are many good answers to that question, and every answer has a direct bearing on the kind of performance you get from your television set.

Some television viewers, caring little about antennas, get along with minimum performance from their sets.

Your television antenna—whether it stands on top of your set or on top of your roof—is the vital link between your receiver and the television programs you want to watch.

It is almost as vital as the electrical plug that links your set to the power line.

A television antenna, briefly, is an arrangement of carefully designed parts intended to catch the passing television signals from your favorite stations with the maximum power and quality—and bring them down, without distortion, to your set, to be converted into pictures and sound.

That's a good general answer to the question.

Actually there are more answers because there are many kinds of television antennas—each type designed especially to perform a special kind of job, depending on your situation.

Without getting too technical about it, we can divide them into three general groups.

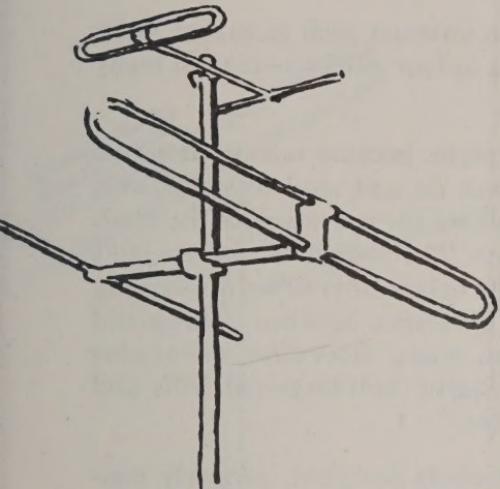
- 1) The *indoor antenna* is the kind you see perched on top of a television set. It is fairly satisfactory in areas with very nearby stations, but not as efficient as the outdoor type. When such antennas are used in homes that have metal in their walls, such as insulating materials or lath, the antenna is shielded from the signal it is designed to receive, the picture may appear weak, contain snow, ghosts and easily react to electrical and other interferences.
- 2) The *built-in antenna* suffers the same limitations, although it can be effective if you live in close range to a powerful station. Many such antennas are also not adjustable and it may be necessary to turn your set to receive the best picture.
- 3) *Outdoor antenna.* There are many types of antennas for outdoor use although they can all be described as either for single channel, selective channels or all channels. Various features are added to each of the basic types to give you the best TV reception depending on your location, distance from the station and station channels to be received.

These are some of the general groups. Your installation man or dealer serviceman will help you choose a type that is suited to your location and your needs. He will consult with you about it, however, because the installation is also affected by your preferences as to stations.

One more antenna device should be mentioned here, because it has a direct bearing on the problem of reception from different directions, although it is not itself an antenna.

This is the antenna rotator. It swings your antenna in all directions, to strengthen any signals you prefer. In some areas it is an indispensable item to receive stations from different directions. Your serviceman will know.

If you live in an apartment building you may be served by a central antenna system. These installations are designed to give the best signal to a group of receivers from one master antenna.



# Why a Television Antenna System?

Why do you need a television antenna?

What is a television antenna?

What does a television antenna do for you?

Where do you put it?

How can you best take care of it?

Most people, during the growth of radio, long ago gave up elaborate outside antennas—the high arrays of wires you used to see outside so many homes. They found that radio worked about as well without such aerials—especially when radio stations became so numerous that there were several within a short distance of almost every listener. The few people who wanted good around-the-world short wave reception kept their antennas. Others hooked wires to bed-springs or radiators to boost weak signals. Most people just stopped bothering with antennas as radio spread and blanketed the nation.

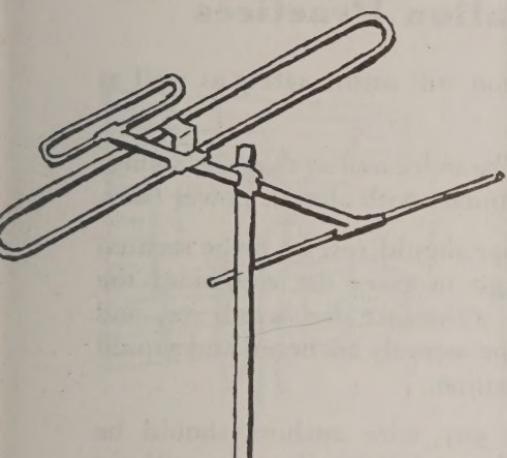
Television is growing toward blanketing the nation, too. But television is not exactly like radio. Radiators and bed-springs will not work as television antennas—and "just not bothering" is not a satisfactory solution. Even for reception

of nearby stations, a built-in antenna such as makes radio acceptable—or even a special indoor antenna—may in many cases be unsatisfactory.

This is easy enough to explain, because television waves do not behave as radio waves do and tend to travel in a straight line, not bending around the curvature of the earth except in unusual conditions. The height of the station's transmitting antenna, and the height of your own receiving antenna, may make all the difference between getting and not getting the program you want. Television waves also bounce oddly off walls of nearby buildings—off hills and mountains and bodies of water.

All this means that a precisely-designed, properly constructed, and properly installed antenna system is necessary for the best reception of television programs, whether on VHF or UHF channels.

The television antenna plays an even more important part in the reception of color television programs which are growing increasingly popular. Your present antenna may not have been designed with the engineering features necessary to receive these color telecasts which are considerably more critical and sensitive than black and white. Most of today's new TV antennas incorporate the necessary characteristics for truly rendered color reception.



## Where to Put a Television Antenna?

The best place for your antenna is out of doors, high above nearby obstacles, and in the clear.

That doesn't mean a good installation man can't find an equally good place that doesn't fit all three of those specifications. In certain areas, the indoor or built-in type may work satisfactorily.

The outdoor type of antenna can also be installed in an attic. This kind of installation has been known to give good results, especially in good signal areas, and has the advantage of protecting your antenna from weather damage, as well. However, if you are troubled with ghost images or snow in the picture an outdoor installation may be necessary.

It should be noted that snow on the roof, or the leaves of nearby trees, may diminish the strength of reception somewhat, especially on the UHF channels.

Here again advice from the installer or your service technician may be helpful in selecting the best location, height and direction.

## **Good Installation Practices**

A good outdoor installation will insure safety as well as top quality reception.

The antenna mast should be so located so that if it swings or falls it will not come in contact with electric power lines.

The antenna mast or tower should rest on or be secured to a structure strong enough to carry the weight of the installation with necessary allowance for wind, ice, and vibration. The mast should be securely anchored and should not lean from its vertical position.

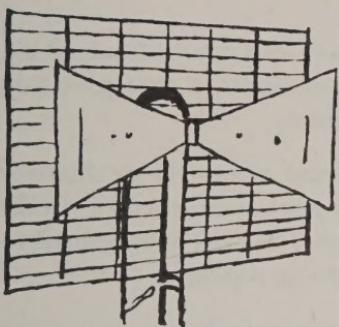
The mast supports and guy wire anchors should be secured in such a way that the supporting structure will not be damaged or weakened. Particular care should be taken with roof fastenings that may puncture the shingles, causing leaks, or anchors secured in chimneys or masonry that may loosen the mortar. Fastenings in masonry should be placed in the brick or stone, never in the mortar joint.

It is advisable to strengthen all antenna masts over 10 feet high with three equally spaced guy wires made of corrosion resistant cable, such as stranded galvanized steel.

A lightning arrester, approved by Underwriters' Laboratories, Inc., for TV leads, should be used.

All metal masts or towers should be grounded by a conductor of suitable size. All grounding conductors should be bonded to a dependable grounding element such as a cold water pipe or a metal rod driven into the ground.

Installing, repairing or relocating TV antennas requires special technical skill and knowledge. Therefore, the work should be done only by competent technicians equipped with the necessary tools, equipment and experience.



# How to Care for Your Television Antenna System

Most people don't realize that a television antenna needs attention and care to do its job efficiently and think of an antenna as "something you put up and forget about." Age and weather can diminish the performance of an antenna system. The change in picture quality is gradual, and so may not be noticed.

Actually, your antenna will do its work for many years without any attention at all—but it will give you peak performance only if you give it even half the attention you give your automobile.

Weather is not kind to outdoor antennas.

*Wind* can push the antenna itself or any of its rods out of adjustment, loosen connections, and generally throw an antenna out of shape, possibly affecting your picture quality.

*Rain* and *soot* from chimney smoke can rust and corrode parts.

*Ice* formations on the antenna can add enough occasional weight to bend the rods out of shape.

*Heat* and *cold* can loosen parts by expansion and contraction.

Transmission lines from the antenna to your set age and lose their efficiency, especially when exposed to the effects of outdoor weather.

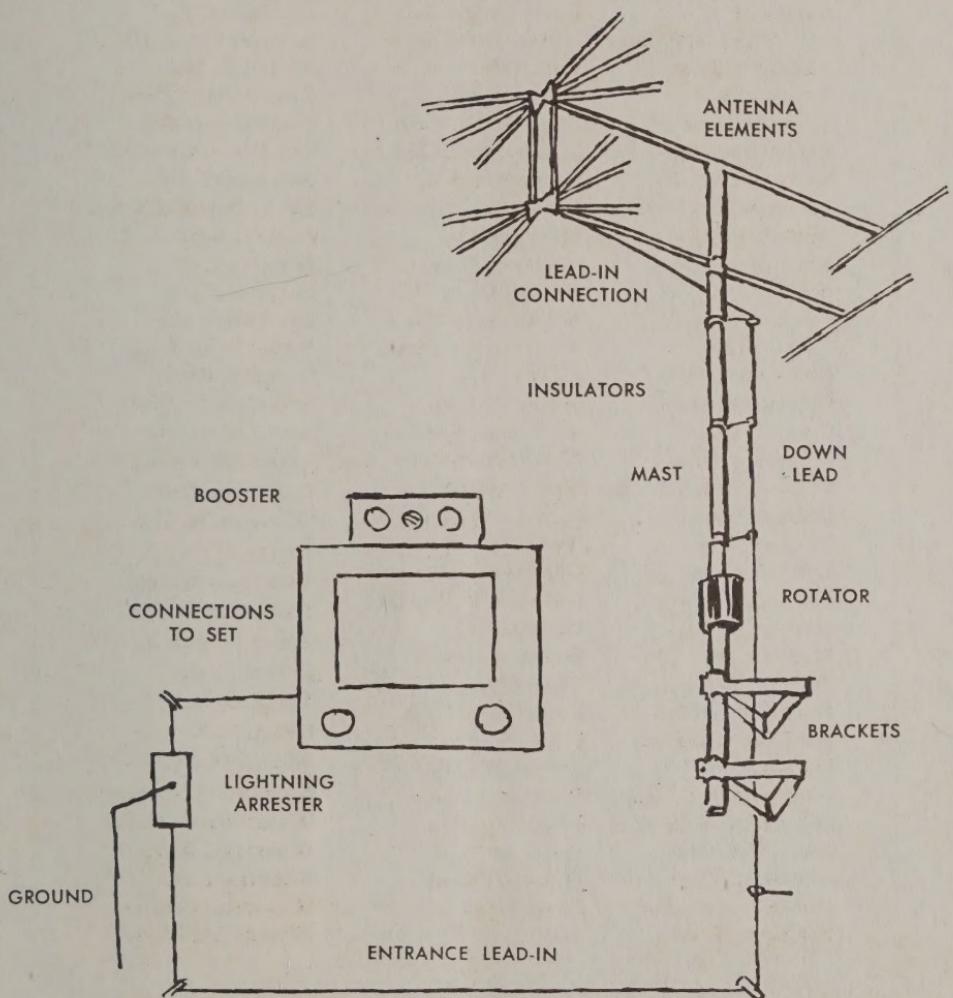
These weather factors and others can cause diminishing signal reception strength, loose connections that give you flickering pictures, and other troubles.

Your antenna should be inspected regularly to discover and forestall these changes in its peak performance condition, to be sure connections are tight, lead-in lines unbroken and all parts in place and in shape or replaced.

Such attention and care can mean better television pictures.

Your service technician should know the specifications demanded by the manufacturer of your antenna and the standards set for the best performance.

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*An antenna system with its various  
electrical and mechanical components*

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National Better Business Bureau

405 Lexington Ave., New York 17, N. Y.

